An Approach to Biliary Tract Operations

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• **By changing the position of the patient and of the operating team and by using a right-angle incision, superb exposure of the right upper quadrant abdominal contents can be had with little or no retraction by human effort.**

MANY DIFFERENT KINDS of incisions have been suggested for adequate exposure of the contents of the right upper quadrant of the abdomen. One of these, described by Ripstein,[2] entails opening both the chest and the abdomen to expose the common duct widely and with safety. Use of a second and even a third assistant is mentioned in many of the articles on the subject. In surgical procedures carried out by the average surgeon who does not practice in a medical center, the use of even a second assistant is usually prohibited by economic factors.

We have been pleased by the superb exposure of the extra-hepatic biliary tract offered by a combination of changes in the usual approach that we have been using for the past several years. One of the changes is to place the patient in a position on the operating table that will gain as much as 5 inches of vertical exposure to the duct areas, as can be seen in Figure 1.

The patient is rolled to the left and a standard pillow is folded lengthwise, compressed as much as possible and placed beneath the shoulders and back. A second pillow is placed between the legs. The rolled or slanted position of the patient is adjusted so that the right side of the coronal plane is elevated enough that this plane makes an angle with the horizontal of about 20 degrees. The table is then "broken" in the middle so the right flank muscles are stretched. The entire table is then tilted headup approximately 10 degrees so that gravity will retract the abdominal viscera toward the patient's left side and toward the feet. The right arm is attached to the anesthetist's "screen" so that the humerus is elevated approximately 90 degrees and the forearm flexed the same. Considerable care must be taken to assure that no traction on the axillary or supraclavicular vessels and nerves occurs. By putting the arm in this position, a slight degree of upward and outward traction is placed upon the right costal margin. This adds to the exposure available through the right angle incision to be described.

The depression brought about in the abdomen directly over the common duct area (Figure 1) is the equivalent of having brought the common duct anteriorly the same distance. In addition, the position seems to permit the duodenum and common duct to slide medially and appear as if they were on top of the spinal column. With the patient in this position and traction maintained mechanically, one surgeon by changing his place at the operating table can carry out the operation almost without assistance.

Often in descriptions of cholecystectomy technique the surgeon is advised to avoid the awkward position that otherwise would be necessary by moving from the right side of the table to the left to palpate the anatomic structures in the hepatoduodenal ligament. With the position herein described, this shifting from side to side is obviated,

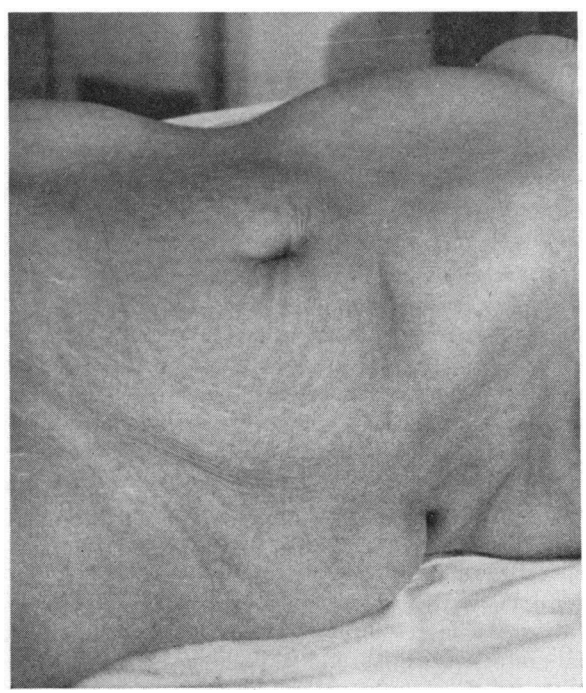

Figure 1.—An obese patient in the left semilateral cholecystectomy position. Note the pronounced depression just below the right costal margin. It is this depression, caused by sagging of the viscera to the left and caudally, that in effect brings the common duct area close to the abdominal wall.

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for the entire operation is done from the left side, the surgeon standing in a natural and relaxed position and looking directly at the junction of the common and cystic ducts. Moreover, because gravity supplies a gentle tug upon the duodenum and tends to roll it over the anterior surface of the spinal column, while the colon and small intestine sag toward the left ilium, it is not necessary to have an assistant holding constant and accurately placed traction on the common bile duct and duodenum.

The subcostal, the right upper quadrant muscle-splitting incision, and the hockey stick incision have been used most commonly for gallbladder operations. Any of them may be used with the patient in the position just described. In 1953 Holman[1] advocated the use of the Kehr incision, which comes very close to providing the ideal exposure of the extrahepatic biliary tree. We have found that the right-angle incision in the right upper quadrant gives the best exposure with the least amount of human assistance. Usually the incision is begun just lateral to the lateral border of the right rectus sheath at the level of the tip of the tenth rib and then is extended medially to a point just short of the midline. Opening is made into the abdominal cavity for manual exploration. If any contraindication to the initially planned procedure is observed at that stage, the second limb of the incision need not be made.

If after exploration the surgeon decides to continue, the vertical skin incision is made directly in the midline, starting from the medial end of the completed transverse incision and extending upward to the tip of the xiphoid process. A long strand of heavy retention silk is placed through the fascia at the projecting corner of the upper flap created by the incisions. A weighted vaginal retractor is tied to this suture approximately 5 inches from the "corner." The corner is lifted vertically slightly and then drawn upward in a direction such that the heavy silk bisects the base of the flap triangle. The use of this weighted retractor provides a wide opening through which the surgeon may operate with no other abdominal wall retraction required. A laparotomy pad is used to hold the hepatic flexure area of the transverse colon out of the operative field. After the stomach has been emptied of its gaseous and liquid contents through a nasogastric tube, a second pad is used to pack it toward the left. In many patients the common duct will lie almost flush with the abdominal wall and sometimes flush with the skin on the left side of the incision. Common duct operations and cholecystectomy are greatly facilitated by the above described incision, and the position of patient and surgeon.

Accurate closure of this abdominal incision is important. The tension on the flank musculature is released by straightening the surface of the operating table, no change being made in the general slope toward the foot of the operating table, lest the viscera ascend enough to make the closing of the abdomen difficult. Then the weighted retractor which has been holding the upper flap is lifted and pulled across the abdominal wall so that the heavy silk suture lies toward the left and somewhere in the area of the anterior superior spine of the left ilium. With the weight drawing the upper skin flap into approximate anatomic position, the fascial structures of the right-angle corner are approximated with a single figure-of-eight suture of 2-0 silk. Closure of the abdominal wall may be done in any fashion that suits the surgeon.

This procedure has been used to provide excellent exposure for pancreaticoduodenectomy. With the patient turned toward the right and a left upper quadrant right angle incision, admirable exposure for splenectomy can be obtained. We have used and modified the procedure over a period of more than ten years with no incident of wound complication other than the kinds that occasionally follow any operation.

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REFERENCES

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